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10/566,482

01/31/2006

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04/16/2008

EXAMINER

BHAT, NARAYAN KAMESHWAR

ART UNIT

PAPER NUMBER

1634

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/566,482 | Applicant(s) BAZYLENKO, MICHAEL | |
| | Examiner NARAYAN K. BHAT | Art Unit 1634 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 10-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-15 in the reply filed on February 13, 2008 is acknowledged.
2. Applicant's election of invention of group I, claims 1-15, in the reply filed on February 13, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
3. Claims 16-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions of group II and III there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 13, 2008.
4. Claims 1-20 are pending in the application.
5. Claims 1-15 are under prosecution.

35 USC § 112 Sixth Paragraph

6. The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as the means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

7. The limitation of "means for determining a specific binding event" in claim 1, line 2, is being treated under 35 USC 112, sixth paragraph as being limited to a plurality of light sources and photodetectors, which is the "means for determining a specific binding

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event " as recited in the instant specification (pg. 5, lines 15-19) or functional equivalents light sources and photodetectors. Above limitation is specifically invoked by the Applicant, and treated under 112 Sixth Paragraph.

8. The limitation of "means for determining a specific binding event" in claim 1, line 3, is not being treated under 35 USC 112, sixth paragraph because the claim language is modified by sufficient structure for achieving the function, i.e., an electrical signal.

9. The limitation "means for determining a specific binding event" in claim 9, line 1, is not being treated under 35 USC 112, sixth paragraph because the claim language is modified by sufficient structure for achieving the function, i.e., a planar waveguide and an evanescent field of light.

10. The limitation "means for determining a specific binding event" in claim 10, line 2 is being treated under 35 USC 112, sixth paragraph as being limited to a plurality of light sources and photodetectors, which is the "means for determining a specific binding event " as recited in the instant specification (USPGPUB, paragraph 0017) or functional equivalents light sources and photodetectors.

11. The limitation "means for determining a refractive index change" in claim 10, line 2 is being treated under 35 USC 112, sixth paragraph as being limited to a first and second planar waveguide separated by a coupling layer, which is the "means for determining a refractive index change" as recited in the instant specification (USPGPUB, paragraph 0030) or functional equivalents of a first and second planar waveguide separated by a coupling layer.

12. The limitation "means for determining a refractive index change" in claim 11, line 1 is not being treated under 35 USC 112, sixth paragraph because the claim language is modified by sufficient structure for achieving the function, i.e., a first and second planar waveguide separated by a coupling layer.

13. The limitation "means for determining a refractive index change" in claim 12, line 1 is not being treated under 35 USC 112, sixth paragraph because the claim language is modified by sufficient structure for achieving the function, i.e., a first and second planar waveguide separated by a coupling layer.

14. The limitation "means for determining a binding event" in claim 13, line 2 is not being treated under 35 USC 112, sixth paragraph because the claim language is modified by sufficient structure for achieving the function, i.e., a reference light path.

Claim Objections

15. Objection to claims 10, 13 and 14, under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer other claims in the alternatives only (See MPEP § 608.01(n)) is maintained for reasons of record set forth in the office action of September 6, 2007. Accordingly, the claims 10, 13 and 14 and their dependent claims 11, 12, and 14 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. Claims 1-9 are rejected under 35 U.S.C. 102(a) and 102 (e) as being anticipated by Little et al (USPGPUB NO. 2004/0101861 filed Nov. 27, 2002).

Regarding claim 1, Little et al teaches a biochip for testing biological substances comprising a plurality of binding sites (Fig. 8, # 102, paragraphs, 0014 and 0060) and a light source (paragraph 0031) and a photodetector (Fig. 8, # 102c, paragraph 0060), which is an optical means for determining a specific binding event at each binding site.

Little et al also teaches that the plurality of binding sites and the means for determining a specific binding event at each binding site are monolithically integrated into a single chip (Fig. 8, paragraph 0060) and further teaches that binding event at each binding sites is electrically powered and produces electrical signals in response to binding events at each binding site (Figs. 2 and 4, paragraphs 0009 and 0036).

Regarding claim 2, Little et al teaches the means for determining a specific binding event comprise at least one light source (Fig. 4, # 41) and at least one photodetector (Fig. 4, # 18, paragraphs 0009-0011 and 0036) associated with each binding site. It is noted that Little et al teaches that the microlocations and photodetectors forms a unitary structure (paragraph 0011).

Regarding claim 3, Little et al teaches that biochip further comprising a first plurality of electrodes for individually controlling each light source and a second plurality of electrodes for individually controlling each photodetector (Fig. 5C, # 78 and # 80, paragraph 0054).

Regarding claim 4, Little et al teaches that the photodetectors are implemented in a thin film semiconductor layer (Fig. 3, # 38, paragraph 0043).

Regarding claim 5, Little et al teaches that the light sources and photodetectors are implemented in the same semiconductor thin film layer (paragraph 0017).

Regarding claim 6, Little et al teaches that the semiconductor thin film material comprises GaN semiconductor polymer (paragraph 0054), which is the preferred thin film material of the instant invention (see Instant specification, USPGPUB, paragraph 0020).

Regarding claim 7, Little et al teaches that the thin film light source is a resonant cavity, i.e., a microcavity light source (Fig. 5A, # 58, paragraphs 0050-0053).

Regarding claim 8, Little et al teaches that the thin film photodetector is a resonant cavity, i.e., a microcavity photodetector (Fig. 5A, # 60, paragraphs 0050-0053).

Regarding claim 9, Little et al teaches the means for determining a binding event at each binding site further comprise a distributed Bragg reflector structure, i.e., a planar optical waveguide (Fig. 2, # 20, Bragg reflector structure – layer # 24 and # 26 paragraph 0032). Little et al further teaches the reflection of light from the Bragg reflector structure, i.e., the evanescent field of light propagating in the waveguide interacting with the biological substance under test (paragraphs 0032- 0035).

Conclusion

18. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Narayan K. Bhat whose telephone number is (571)-272-5540. The examiner can normally be reached on 8.30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram R. Shukla can be reached on (571)-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Narayan K. Bhat/

Examiner, Art Unit 1634

Narayan K. Bhat Ph. D.

/Ram R. Shukla/

Supervisory Patent Examiner, Art Unit 1634